

REMARKS

Claims 1 through 16 remain in this application, and new claims 17 and 18 have been added by amendment. Claims 2, 6, 12 and 15 have been amended. Claims 1 and 18 are the only independent claim for consideration. No claims have, as yet, been allowed.

The present invention concerns a hose device which is intended to be coupled onto a tubular member and has a channel which presents a non-circular cross-sectional shape when unmounted and a circular cross-sectional internal shape when mounted. Such a configuration compensates for the flexibility but incompressibility of the flexible material from which the hose device is constructed. Here, the inventor has recognized that the prior art elastic hose devices may result in a restriction of the flow area when the hose device is mounted to a tubular connection member introduced into the hose device. The inventor has addressed this problem by amending the internal cross-sectional shape. According to the prior art, the internal cross-sectional shape is circular which would be the natural approach to mounting a hose onto a circular tubular member. Here, the inventor has developed a superior hose device by deviating from such a circular internal cross-sectional shape. By this invention, it is possible to achieve a hose device which, after being mounted onto a tubular connection member, the internal cross-section is circular, and thus has a maximum flow area. In order to more clearly define how the cross-sectional shape be non-circular in a non-mounted state, applicant has presented herewith a new independent claim 18 wherein the internal cross-sectional shape of the hose device has a first portion which has a substantially constant radius r and an outwardly extending second portion having along a least a part of the second portion a distance a which is greater than the radius r . This shape of the first portion (10) and the second portion (11) is supported by the original specification at page 8, lines 13 to page 9, line 6, and in

particular page 8, lines 15-18, as well as Figs. 2 and 3. One application of such devices is in the dairy industry where such a hose device is coupled to a tubular connection of a teat cup claw for transporting milk through the channel of the hose device, and Fig. 1 shows a teatcup liner useful for this purpose. In that regard, dependent claim 17 has been added as directed to a hose device configured for this application.

In the Office Action, the Examiner has required corrections to the drawings, and a new Fig. 5 is submitted herewith in response to those requirements with respect to the cross-sectioning of the tubular member and the reference character "α". In addition, the examiner objected to the drawing because reference sign "a" is not mentioned in the specification. Applicant courteously invites the Examiner's attention to page 8, line 22 where the reference character "a" is discussed, and thus this ground of rejection is respectfully traversed. Applicant also advises that when the original Swedish priority application was translated, the word "after" was omitted in the sentence at page 9, lines 27-29 of the PCT application in English. This error has now been corrected and the specification amended accordingly herewith.

The Examiner has also objected to claims 2, 6, 12 and 15 under 35 U.S.C. §112. Applicant has amended claims 2 and 6 to positively recite the connection member rather than to merely recite the configuration of the hose when mounted thereto. In regard to claims 12, the specific nature of the objection was not set forth in the Office Action. Applicant has amended claim 12 to use more colloquial English and to specifically recite that the outer surface of the transition portion is substantially circular when viewed in cross-section. Further, the antecedent bases called to applicant's attention in claims 15 and 16 have been added.

With regard to the prior art rejections, claims 1-3, 5-8, 10-12 and 16 have been rejected as being anticipated by U.S. Patent No. 6,039,001 to Sanford. Sanford '001 discloses a teatcup liner having a hose portion 212, an upper end 207 for introducing a teat, and a transition portion 210, in which the teat is present during milking. The transition portion has a cross-sectional shape deviating from a circular cross-sectional shape. However, when reading and interpreting Sanford '001, the Examiner has turned the Sanford teatcup liner upside-down so that the first end is interpreted as the upper end of the teatcup liner. Claim 1 specifically recites that the first end portion is to be mounted on a tubular connection member and that the transition portion and the channel which is further defined is between the first end portion and the hose portion. Sanford '001 does not meet this limitation, for the reason that any non cross-sectional shape on Sanford '001 is not located between the first end portion to be mounted on the tubular connection member and the hose portion, but rather on the opposite end which is not to be connected to a tubular connection member but rather to a cow's teat. It should be understood by the Examiner as well as those skilled in the art that the non-circular teat receiving part of the Sanford '001 liner is intended to flex and massage the teat of the cow to promote lactation, whereas Sanford '001 teaches that the short milk tube 240 shown in Fig. 18 has an internal channel with a diameter 228 and is thus circular in cross-section throughout its length. For this same reason, Sanford '001 would not suggest to one skilled in the art to modify a standard hose portion to make the channel non-circular as claimed, for there is no reason or incentive to do so. The Examiner has recognized that the hose portion of Sanford '001 is depicted by reference character 212, but has mischaracterized the teat-receiving mouth of Sanford's liner (207) as corresponding to the first end portion to be mounted on a tubular connection member. However, the applicant in claim 1 further described the channel as being along the hose

portion, and the channel as being non-circular in cross-section in an unmounted state and circular in a mounted state. There is no teaching or suggestion in Sanford '001 that in a mounted state, the channel in the teat-receiving portion 210 is circular in cross-section. Thus, even given the misunderstanding, the hose portion 212 is not non-circular in cross-section when unmounted and the teat-receiving portion 210 is not shown to be circular in cross-section when mounted. Thus, Sanford '001 fails to meet the limitations called for in claim 1.

Applicant also respectfully traverses the rejection of claim 2 as being anticipated by Sanford. Claim 2 calls for the connection member to have an end surface which is obliquely cut. Sanford '001 does not show this and mounted as claimed. In fact, claim 2 reinforces the foregoing discussion, as the connection member is positively recited as a part of the combination and mounted to the first end portion. Similarly, Sanford '001 does not anticipate claim 3, because even the assertedly implied connection member of Sanford '001 would not be mounted such that the mouthpiece 207 would be on the connection member. Claims 2 and 3 thus clearly distinguish over Sanford '001.

With regard to claim 12, applicant respectfully traverses the Examiner's rejection on Sanford '001. The examiner has characterised the transition portion as being the teat receiving portion 212 as this portion presents a non-circular area within the channel. However, if this is (albeit incorrectly, for the reasons set forth above) characterised as the transition portion as claimed, it is manifest that this portion does not possess both a non-circular inner channel and a circular outer surface.

With regard to the rejections under Section 103, there is nothing in Sanford '001 which would teach or suggest one to modify Sanford to provide an egg-like cross-sectional shape

in a non-mounted condition. There must be some teaching or suggestion in the art to motivate one to modify a reference – here, not only is Sanford's non-circular cross-sectional transition portion not mounted onto a tubular connection member (note that the shell is mounted over the teat-receiving portion), but furthermore there is no reason or motivation to do so. The rejection under Section 103 must find a basis in the prior art for doing so, and may not be merely hypothecated without support. While anyone can modify a shape, there must be some teaching or suggestion for the egg-like cross-sectional shape called for in claim 4, and none is found in the art.

The remaining references to Larson (4,324,201), Larson (6,164,243) and Hein (2,694,379) add nothing to suggest the present invention, alone or in combination with the other references including Sanford '001 discussed above. The Larson '201 reference discloses a conventional teatcup liner having a hose portion 32, and end portion 34 and a transition portion 35. Here, the hose portion has a circular cross-sectional shape in a non-mounted condition as recognized by the Examiner. Thus, Larson '201 adds nothing to teach or suggest the present invention. Larson '243 also discloses a liner having a hose portion 28, a lower end portion, a transition portion, and a teatcup liner portion 14. Again, like Sanford '001, the Larson '243 patent teaches providing the teat-receiving portion of the liner with a non-circular cross-sectional area, but the hose portion including the first end into which the tubular connection member is received is conventionally circular in internal cross-sectional shape. Hein '379 has a hose portion which varies in its inner radius in an axial direction in a non-mounted state. However, it is a radius, and it can thus be understood that Hein's channel is circular in cross-section.

In addition to the foregoing claims, applicant has presented two new claims. Claim 17 is presented for the specific application of the present invention to a teatcup liner, and thus it calls

for an upper part for mounting in a shell of a teacup and for receiving the teat of an animal therein. This further limits claim 17 to this specific construction, the disclosure therefore being found at page 5, line 34 to page 6, line 5, and it correspondingly being understood that the other claims are not limited to this specific embodiment, also as discussed at page 10 of the specification.

Claim 18 has also been added to describe a particular characteristic construction of the non-circular cross-section in an unmounted state of the transition area. Here, the claim calls for a first portion of the transition portion to have a radius r from the longitudinal axis x , and thus partially circular, while another portion has a distance a from longitudinal center axis x which is greater and than r and increases longitudinally. Remembering this location is along the transition portion between the hose device and the first end for mounting to a tubular connection member, non of the prior art teaches or suggests such a construction.

For all of the foregoing reasons, applicant submits that the specification and the claims are now in proper form, and that all of the claims define patentability over the prior art. Accordingly, early issuance of the Notice of Allowance is courteously requested. Should any additional fees be due in connection with this submission, they may be charged to deposit account 19-0522. Any issues which remain and may be resolved by a telephone conference may directed to the undersigned at 1-800-445-3460.

Respectfully submitted,

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DRAWINGS

Applicant submits herewith proposed revised drawing Figure 5 for inclusion in the case. As requested by the Examiner, the crosshatching of the claw including the pipe nipple has been added, as has the reference character "α" referenced at page 7, line 19. Also, the longitudinal axis shown by the reference character "x" in Fig. 2 has been added to Fig. 5. No new matter has been added. It is respectfully requested that this drawing revision be included in the application.